

ABSTRACT OF THE DISCLOSURE

A microfabricated instrument for tissue biopsy and genetic analysis. The instrument is specifically designed to take tissue and blood samples and carry out genetic (DNA) assays in an integrated reaction chamber. The instrument is portable and has the ability to take small tissue or blood samples in a minimally invasive manner from localized regions, then immediately perform the DNA analysis through a technique such as real-time PCR. Thus, this instrument links a minimally invasive micro-biopsy tool with microfluidic channels and a PCR reaction chamber into a single disposable device. The instrument can be used to rapidly detect and identify people or the presence of disease, with applications in both the military and civilian sectors